



United States Coast Guard Differential GPS

June 2007 Status Charts

LT Lee Hartshorn
07 June 2007



Outline

- System Overview
- FY07 Nationwide Funding
- Temporary DOT Sponsorship
- NDGPS Transition to MDGPS
- DOT Interim Assessment Report
- User Feedback Forum
- DGPS Enhancements



Differential GPS Concept

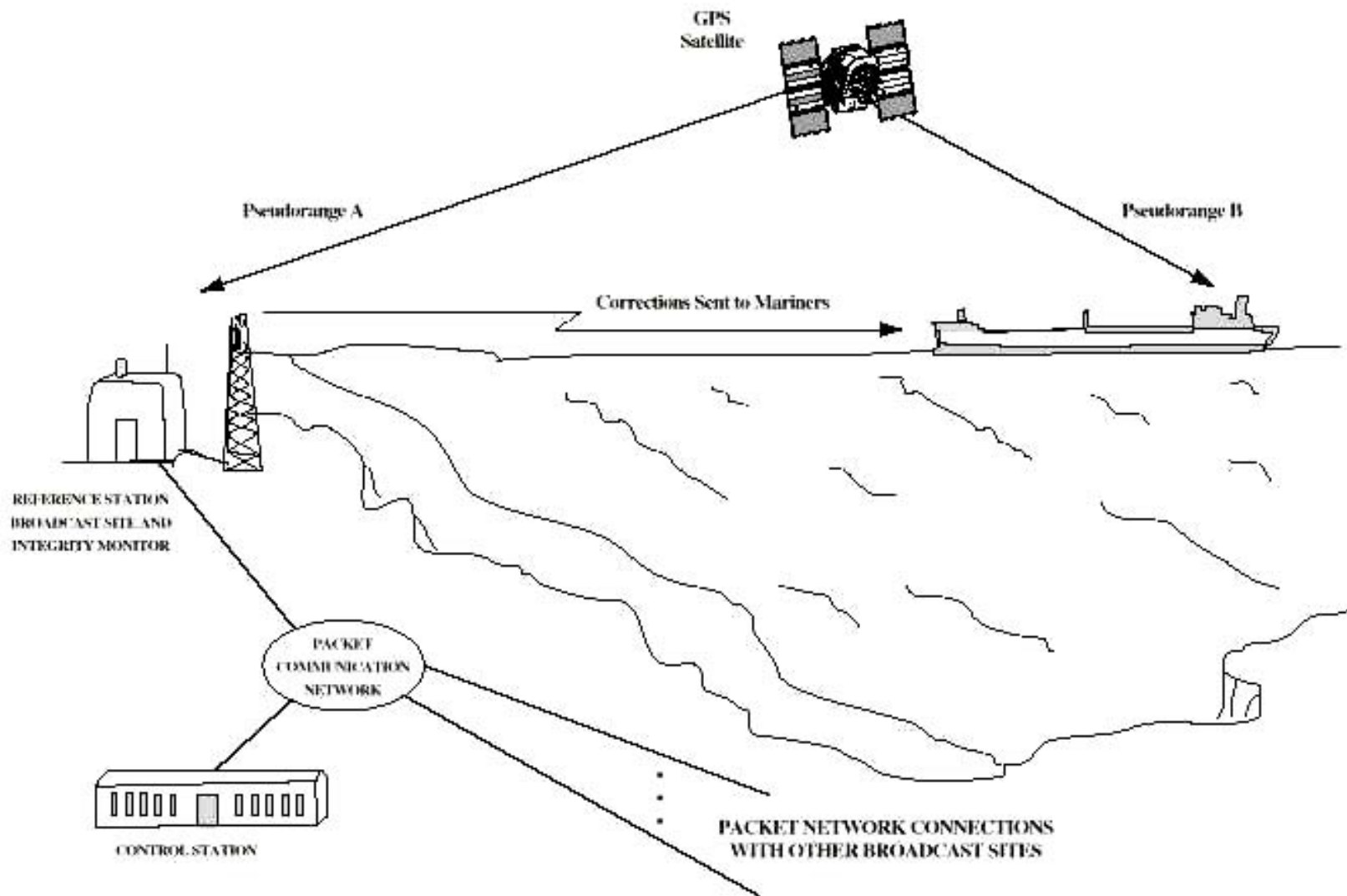
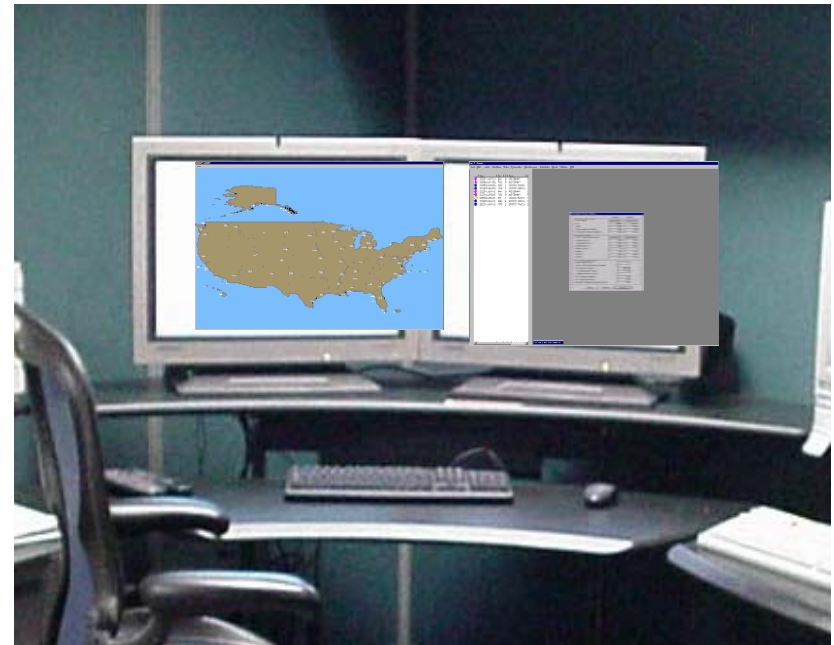


Figure A-1. USCG DGPS Navigation Service Architecture

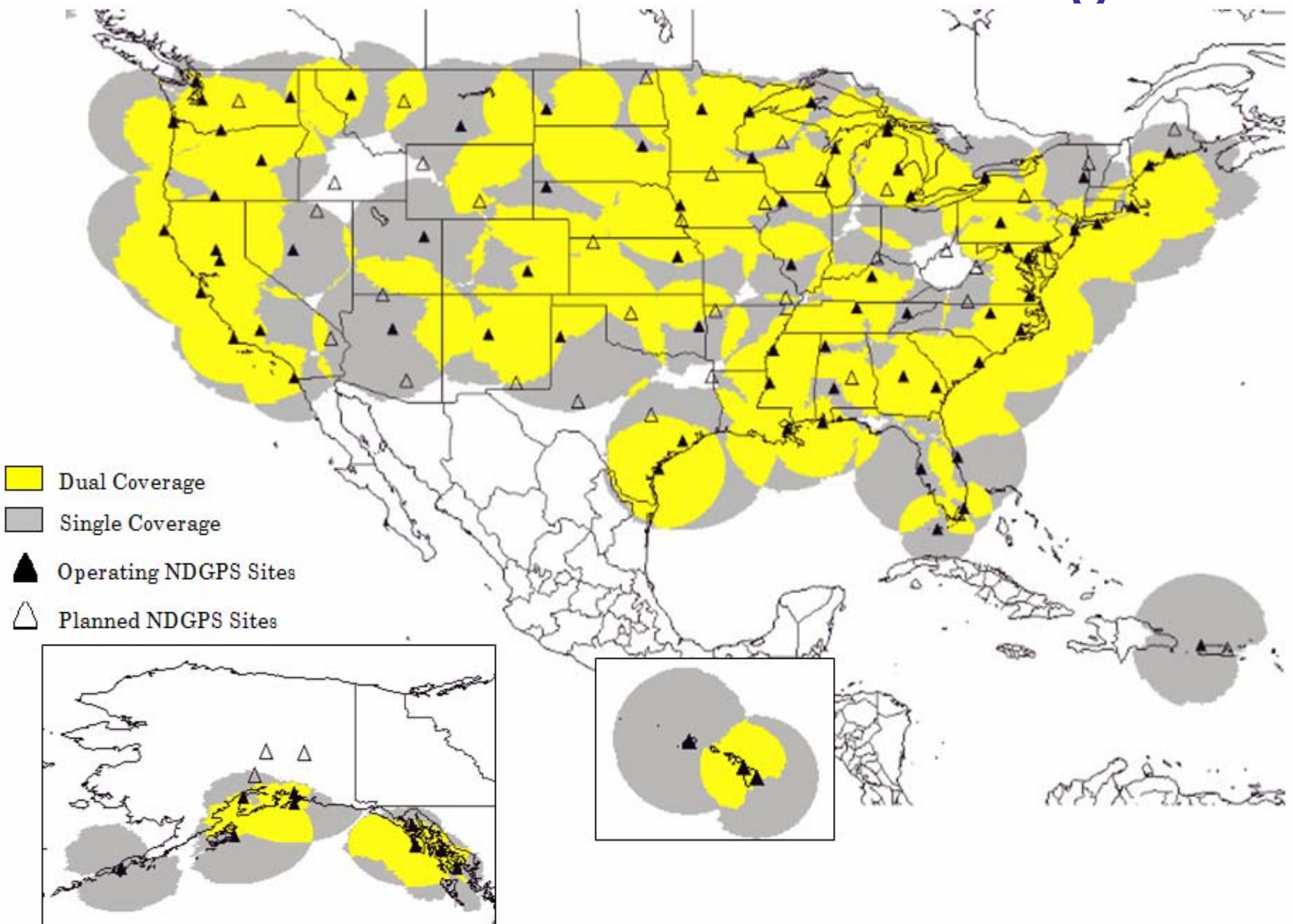
Nationwide / Maritime DGPS

Currently 86 operational sites:

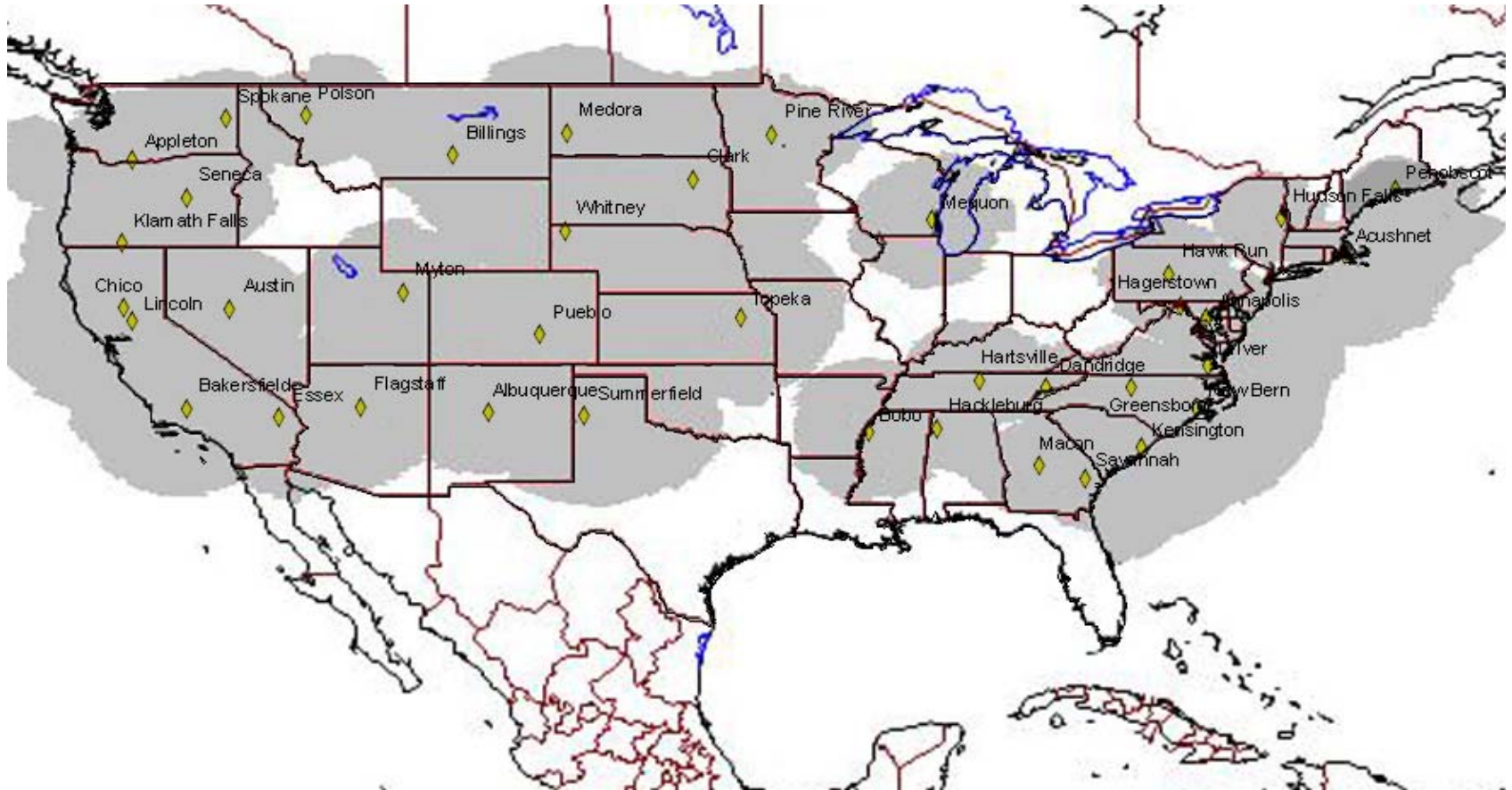
- USCG NAVCEN is Operational Control for all sites.
- USCG Maritime → 39 sites
- Dept of Transportation → 38 sites
- U. S. Army Corps of Engineers → 9 sites



Nationwide DGPS Coverage

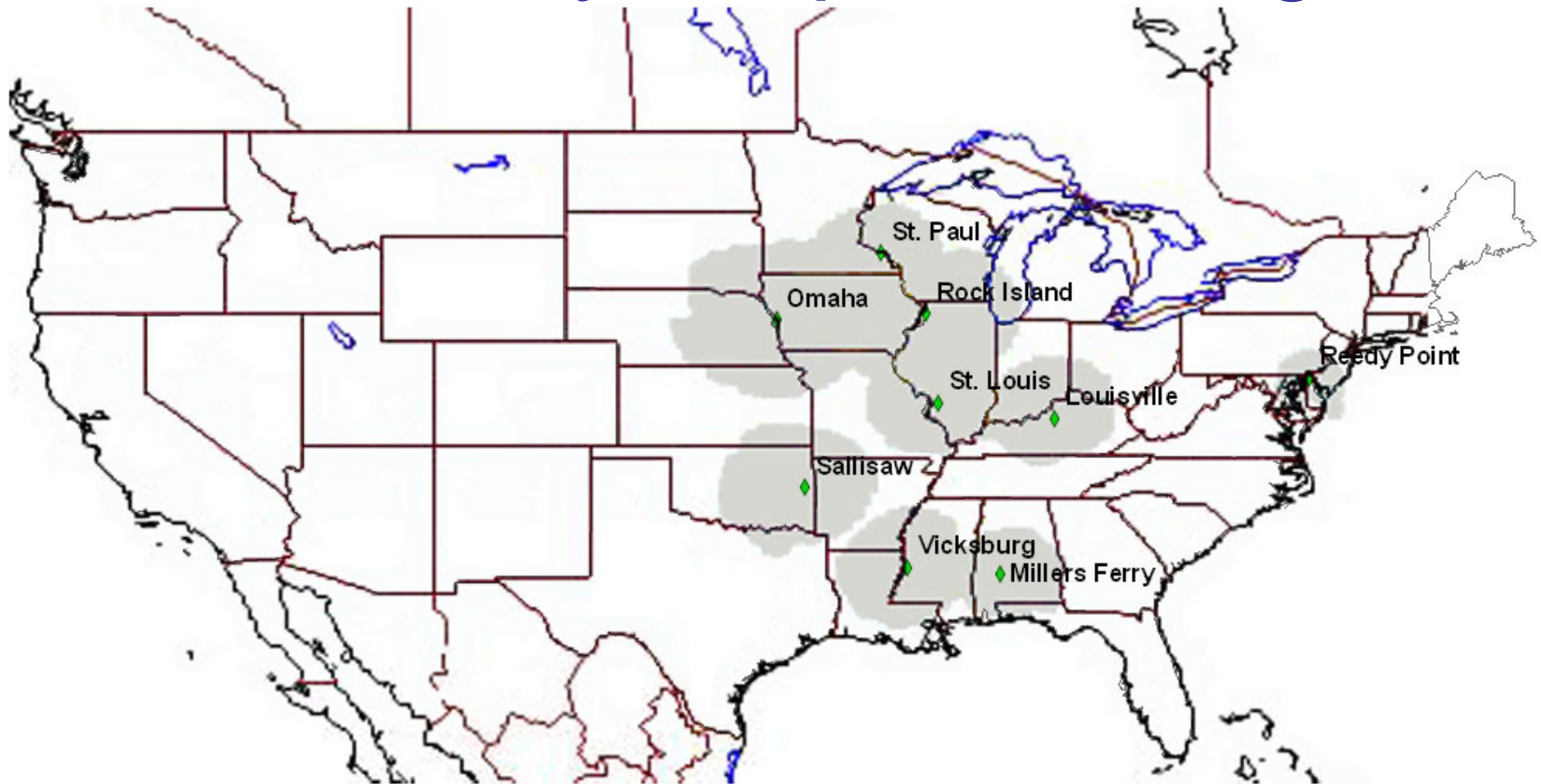


DOT Funded Coverage



- US Dept of Transportation Funds, USCG Operates & Maintains → Positive Train Control, Intelligent Transportation Systems

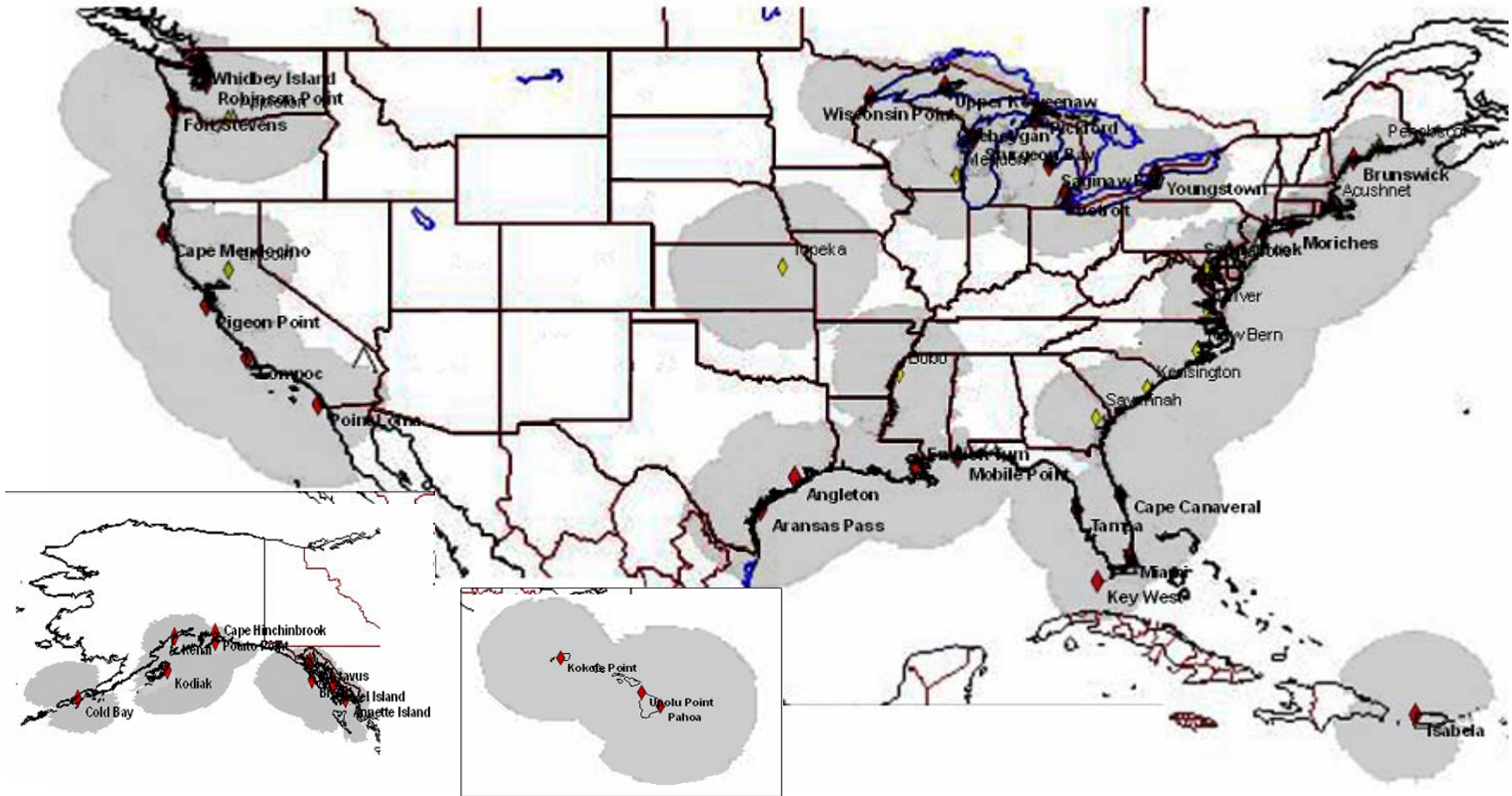
U. S. Army Corps Coverage



- US Army Corps of Engineers funds & maintains
 - Inland Waterway Coverage
 - Supports Underwater Surveying and Dredging



USCG Maritime Coverage



- USCG funds & maintains
 - Maritime navigation, ATON Positioning



FY07



DOT (Nationwide) Funding

- **\$0** requested by Federal Railroad Administration (FRA) / DOT for FY07.
- FRA relinquished sponsorship of Program.
- FY06 reimbursable funds are supporting FY07 routine operating expenses.
 - New construction halted
 - Katrina funded projects continue (\$1.7M)
 - Relocate Mobile Point, AL to Eglin AFB, FL
 - Construct Card Sound, FL



Why doesn't the CG fund the Inland Sites?

- No Authority/Requirement for land navigation
 - 14 USC Section 81
 - The Coast Guard “May establish, maintain, and operate aids to maritime navigation...”
 - Interagency Memorandum of Agreement
 - USCG, FRA, FHWA, and USACE
 - Economy Act Transaction
 - Servicing agency is funded on Reimbursable Basis



Research and Innovative Technology Administration (RITA)

- Agreed to sponsor NDGPS for FY08 as a stop-gap measure.
- Independent Assessment of NDGPS has been awarded by RITA.
 - Interim report received by DOT
- FY08 NDGPS Budget
 - \$5M in President's Budget for O&M



USCG Letter to DOT

13 July 2006

If RITA does not identify a sustainable long-term funding strategy *by* FY08:

- CG will formally initiate termination of involvement in NDGPS MOA.
 - **Maintain Maritime portion (MDGPS) as standalone system.**
 - CG will work with DOT to commence decommissioning of inland sites.
 - Formal public notification required to terminate signals.
- Transition Planning in progress

Resource Proposal (FY09)

- ***In the event that DOT does not fund NDGPS in FY09...***
- 12 DOT Funded Sites identified to preserve Maritime coverage.
- Requests \$543K of O&M funding to maintain Maritime portion of DGPS.
- Resources Division is optimistic of its approval

DOT (Nationwide) → USCG (Maritime)

Conversion Sites

Site Name	State		Site Name	State
Acushnet	MA		Lincoln	CA
Annapolis	MD		Mequon	WI
Appleton	WA		New Bern	NC
Bobo	MS		Penobscot	ME
Driver	VA		Savannah	GA
Kensington	SC		Topeka	KS

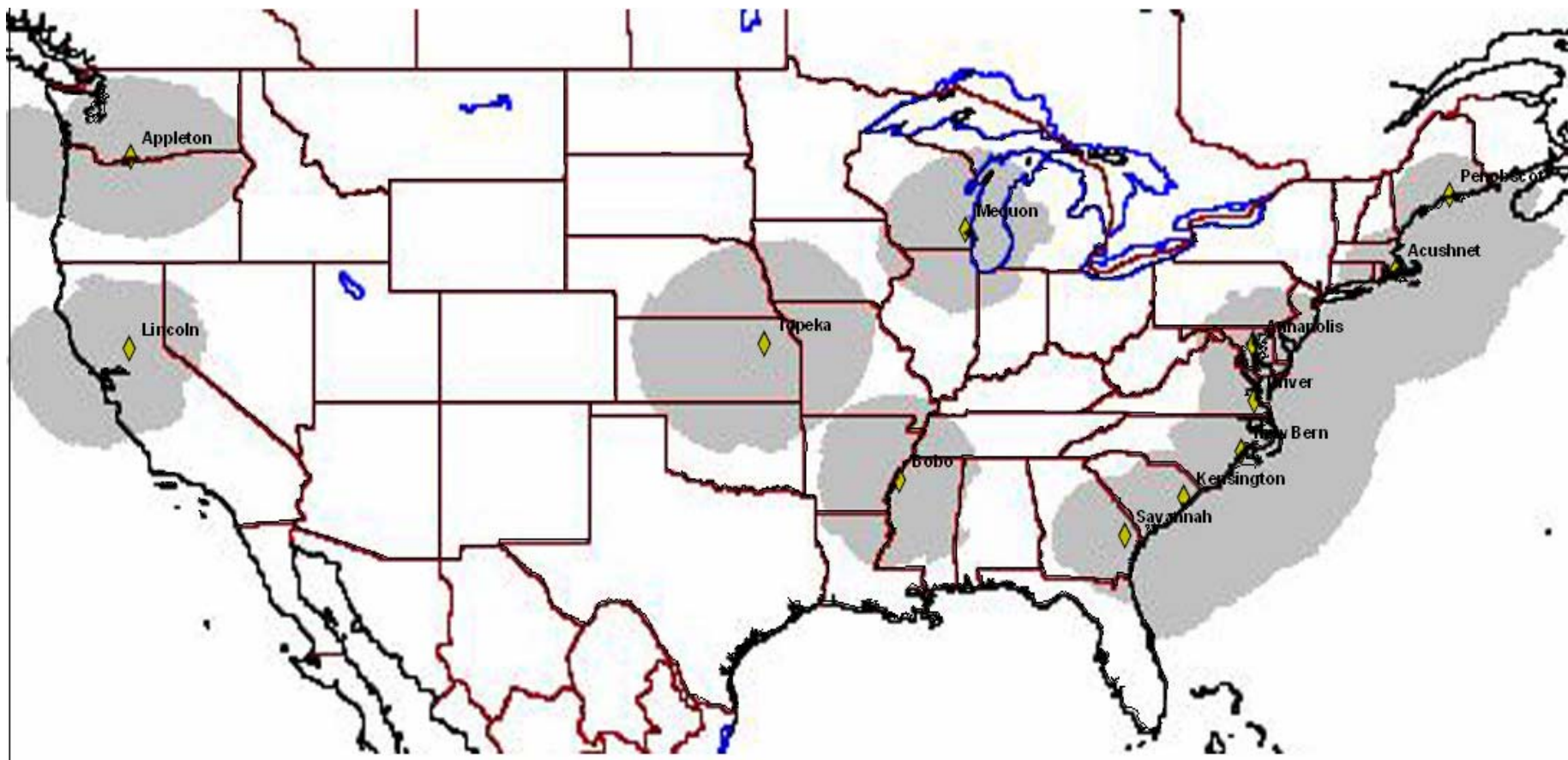


Homeland
Security

U.S. Department of
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**United States
Coast Guard**



Coverage of 12 Conversion Sites

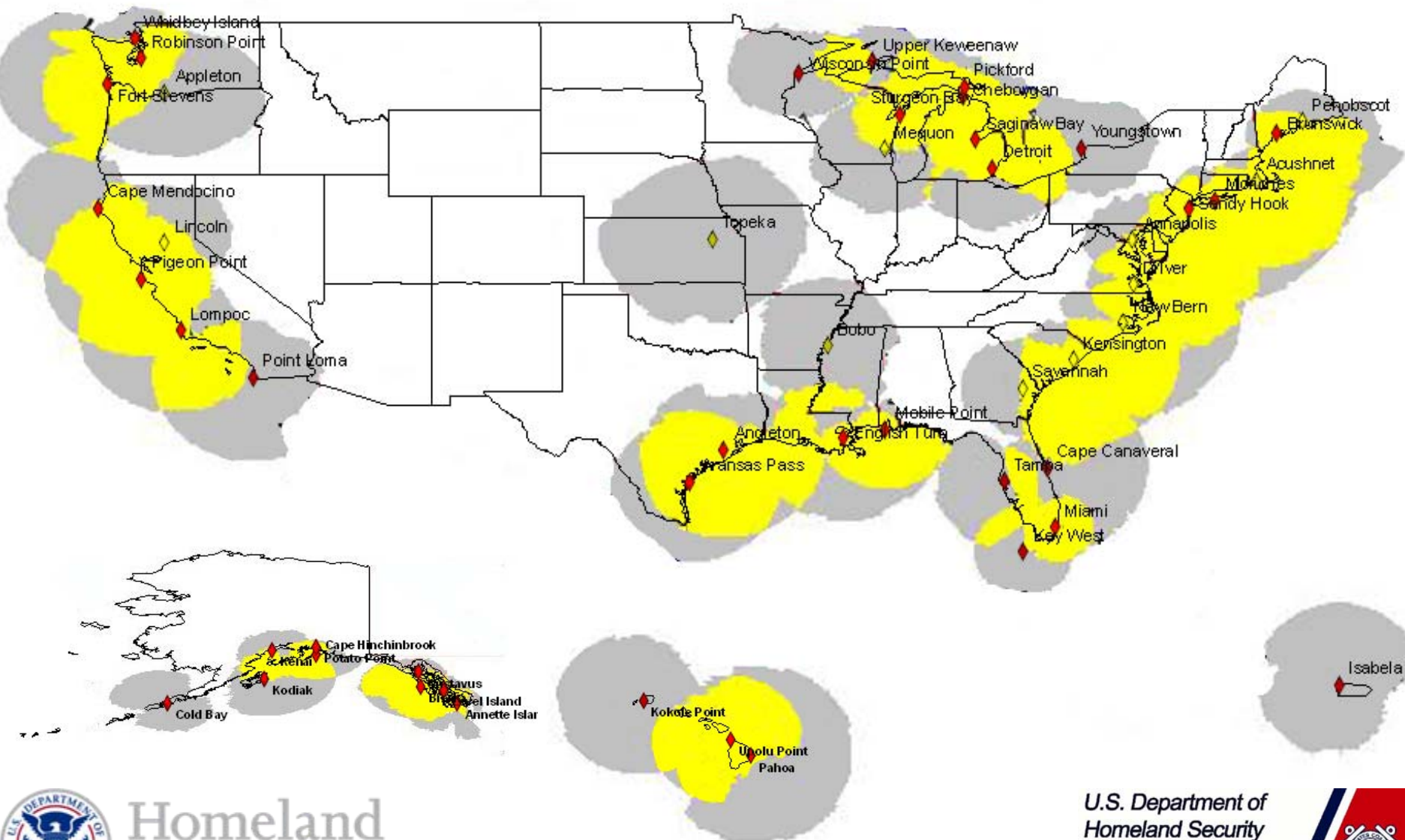


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Possible FY09 MDGPs



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Interim Assessment

- Potential Private Sector Applications
 - Vehicle Infrastructure Integration (VII)
 - Cooperative Intersection Collision Avoidance System (CICAS)
 - Transit Applications
 - Railroad Applications
 - Agriculture Applications
 - Industrial Applications
 - Maritime Applications



Interim Assessment

- Current/Potential Government Applications
 - Dept. of Interior
 - Bureau of Land Management (BLM)
 - National Park Service (NPS)
 - Dept. of Commerce
 - National Oceanic and Atmospheric Administration (NOAA)
 - Dept. of Agriculture
 - U.S. Forest Service (USFS)
 - State and local government applications

Assessment Timeline – Target Dates

- June
 - *Federal Register* Notice
 - Federal agency notice/letter
- September
 - Feedback received from all notices
 - User Assessment Final Report
 - Presentation to Pos/NAV ExCom
- October
 - Roll-up into Decision Document (10/30)



Research and Innovative Technology Administration

Published Status Report

Available on NAVCEN Website

- DOT is currently assessing the continued need for NDGPS, and is searching for agencies to share sponsorship.
 - \$5M requested by RITA for FY08, again with *no funding for expansion*, while conducting the system assessment.
 - In this interim period, the Coast Guard will continue to operate and maintain existing sites ***as funding levels permit***.
 - FY09 funding levels and sources have not yet been identified.
-
- **The Maritime DGPS, which is funded by the USCG, will continue operations regardless of the results of the DOT NDGPS system assessment.**





Research and Innovative Technology Administration

RITA / DOT Point of Contact

- Please direct any concerns for the future of the NDGPS program in writing to:

Timothy A. Klein

Senior Policy Advisor

Research and Innovative Technology Administration

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DGPS RS/IM Recap -- BEFORE

- Reference Station – Ashtech Z12R (L1/L2)
- Integrity Monitor – Trimble 4000IM (L1 only)
- Antennas proprietary to each receiver
- Accuracy typically 1-3 meters (10 meters published)
- Firmware based system
- Not Configurable for new RTCM messages
- Serial based communications
- Post broadcast integrity only



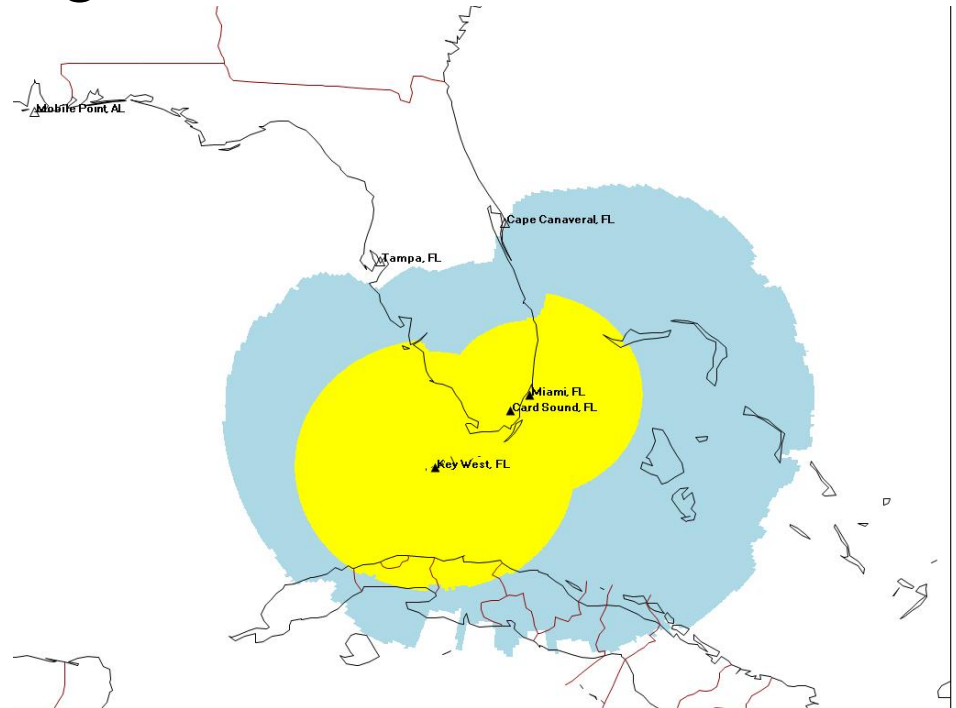
DGPS RS/IM Recap -- AFTER

- Receivers: L1/L2 (L2C) Geodetic Grade
- Antennas Trimble Zephyr Geodetic (L1/L2) on all Receivers
- Accuracy typically 1-3 meters (30cm observed)
- Software / Server based system
- Fully Configurable for new RTCM messages
- Ethernet based communications
- Post & pre-broadcast integrity capable
- Full open architecture (any receiver or server)

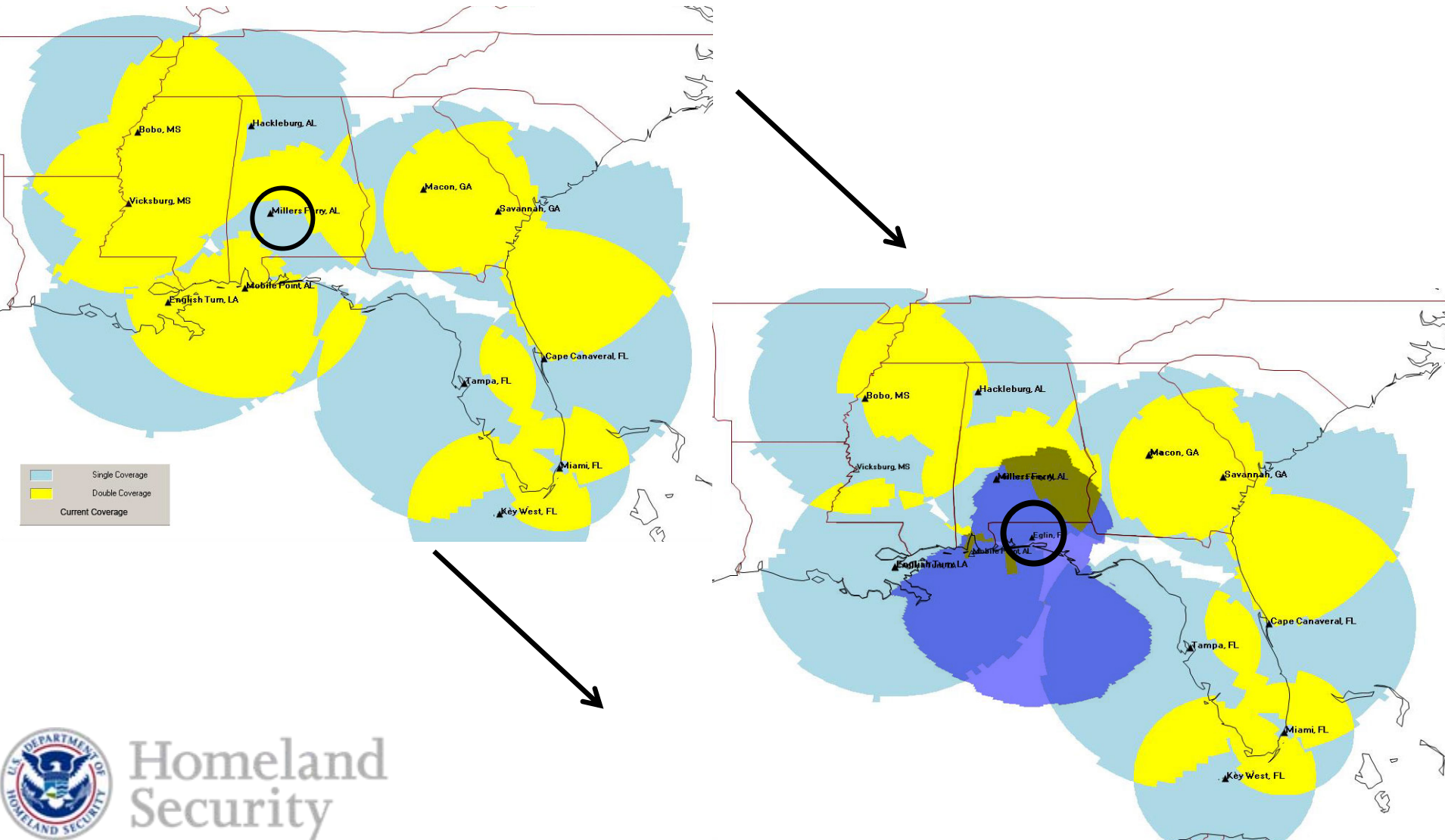


Katrina Build → Card Sound, FL

- Replaces Miami site
- Provides Dual Coverage in Key West



Katrina Build → Move Mobile Point to Eglin AFB, FL



Contact Information

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